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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/729,069

12/04/2000

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EXAMINER

VU, DAVID

ART UNIT

PAPER NUMBER

2818

MAIL DATE

DELIVERY MODE

05/13/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/729,069	Applicant(s) NAGEL ET AL.	
	Examiner DAVID VU	Art Unit 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,10,12 and 14-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,10,12 and 14-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-2, 4, 10, 12 and 14-16 are rejected under 35 U. S. C. 102(e) as being anticipated by Beratan et al. (US 6,177,351, hereinafter Beratan)

Regarding claims 1, 2 and 12, Beratan, in related text and fig. 3 discloses a microelectronic structure, comprising:

a base substrate at least partly composed of an insulating material 302 and formed with an opening; opening completely penetrating through insulating material 302; at least one conductive material 306/307/308 filling opening;

a barrier layer 304 provided over base substrate, barrier layer including an oxygen-containing iridium layer IrO/IrO₂ (col. 5, line 9) and an oxygen barrier layer, oxygen barrier layer being composed of one of iridium dioxide and ruthenium dioxide 304 (col. 5, lines 6-13);

an adhesion layer 310 disposed between base substrate and barrier layer 304, adhesion layer 310 containing at least one material selected from the group consisting of Zr, V, Cr (col. 5, lines 22-38)

a metal silicide layer 310 disposed on base substrate directly between adhesion layer 310 and opening (col. 5, lines 22-38), causing a layer stack of silicide layer 310, adhesive layer 310 and oxygen-containing barrier layer 304 to be formed above opening.

Regarding claim 4, Beratan discloses insulating material 302 is formed of SiN/SiO (col. 4, lines 26-35)

Regarding claim 10, Beratan discloses a metal containing-electrode 304 (Ru/Rh/Pd/Re/Ir) covering oxygen barrier layer IrO₂/RuO₂ (col. 5, lines 6-13).

Regarding claim 14, Beratan discloses metal silicide 310 contains at least one silicide selected from the group consisting of titanium silicide, tantalum silicide, chromium silicide, molybdenum silicide, tungsten silicide and platinum silicide (col. 5, lines 22-38).

Regarding claim 15, Beratan discloses a metal-oxide-containing layer 312 covering metal-containing electrode layer 304, metal-oxide-containing layer 312 being a layer selected from the group consisting of a dielectric metal-oxide-containing layer, a ferroelectric metal-oxide-containing layer and a paraelectric metal-oxide-containing layer (col. 5, lines 55-65 and fig. 3).

Regarding claim 16, Beratan discloses a noble metal layer 304 (Ru/Rh/Pd/Re/Ir) disposed on barrier layer 304 (col. 5, lines 6-13).

Response to Arguments

2. Applicant's arguments filed January 31, 2008 have been fully considered but they are not persuasive.

The applicant states that the bottom electrode 304 of BERATAN is not an oxygen-containing barrier layer. The examiner takes the position that there is no structural difference between a “barrier layer” or a “bottom electrode layer”. They both are, structurally, layers of conductive oxide IrO_2/RuO . The conductive oxide IrO_2/RuO layers are labeled as a “barrier layer” or “bottom electrode layer” depending on how the device is intended to be used. The manner in which the claim is written does not structurally define a “barrier layer” that is distinguishable from any other conductive oxide layers taught by BERATAN. Regarding the recitation of “barrier layer”, the manner of operating the device does not differentiate an apparatus claim from the prior art. A claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987) See MPEP §2114. The recitation of “barrier layer” is an intended use language which does not differentiate the claimed device from the prior art device of BERATAN, who teaches the conductive oxide layers of the claim as described above.

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Vu whose telephone number is (571) 272-1798. The examiner can normally be reached on Monday-Friday from 8:00am to 5:00pm. If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Loke H can be reached on (571) 272-1657. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR, Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/DAVID VU/

Primary Examiner, Art Unit 2818